

PAST USE HISTORY AND PLACE BONDING AMONG AVID TROUT ANGLERS

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Abstract: Experience use history (EUH) was hypothesized to be linked to emotional place bonding. Avid trout anglers (n=203) of two Trout Unlimited chapters were surveyed (response rate = 71%) for EUH and place bonding. Four classifications (Beginners, Visitors, Locals, and Veterans) of EUH were formed and a 26-item scale was rated to form five dimensions of place bonding (Familiarity, Belongingness, Identity, Dependence, and Rootedness). The EUH classifications were shown to be good indicators of emotional bonding with Veterans and Locals having higher degrees of place bonding.

Introduction

Trout fishing is a wildland recreation activity that requires a specific, and limited, type of resource (i.e., high quality mountain streams). Because trout streams are often in limited supply, and are a special type of resource where a rather specialized activity takes place, a strong bond commonly develops between anglers and trout fishing places (Bryan 1979).

The bonding component of recreation resource use can become an important concern with resource specific activities because the resource users are commonly experienced individuals who have

developed a strong bond with resource places over time. Repeat-use areas commonly become "special", "favorite", and even "one of a kind" places for bonded recreationists. Place bonding or attachment is a common phenomenon where resource users become emotionally bonded to specific places over extended use of the area (Williams & Patterson, 1996). Thus, one could speculate that experienced trout anglers would be more bonded to high quality trout streams than less experienced, bonded anglers (Bricker & Kerstetter, 2002). Also, the character or dimensions of place bonding may differ according to level of experience use history (EUH). The purpose of this paper was to examine the relationship between the amount of EUH and the degree and character of place bonding behavior of trout anglers for a wild and scenic stream in the Southern Appalachian Mountains.

Related Research

Experience Use History

Experience use history (EUH) refers to the amount of past experience, usually measured in terms of years and frequency per year of participation with an activity and/or resource (Hammitt & McDonald, 1983; Schreyer, Lime, & Williams, 1984). EUH has been shown to have multiple dimensions; specific past experience with a particular study site, and past experience with other similar sites.

Experience use history research has been driven by the premise that experienced users have a substantially greater knowledge base concerning activities and resource places, and therefore a different frame of reference when evaluating resource settings and use (Schreyer et al., 1984; Manning, 1999). Use experience, by definition, is accumulative over time and some researchers have defined EUH as a continuum, where recreationists begin as novices and may become experienced veterans (Schreyer et al., 1984). Using the three river recreation use variables of: (1) number of times users floated the study river, (2) number of other rivers users had floated, and (3) total number of river trips taken, Schreyer et al. formed an index measure of EUH. Based on combinations of the three river use experience variables, six types of river users were identified, ranging across a continuum of novices, beginners, locals, collectors, visitors, and veterans. These six experience levels of recreationists were found to differ significantly in

terms of participation motivations, perceived conflicts, and attitudes toward management practices (Schreyer et al., 1984; Williams, Schreyer, & Knopf, 1990).

The study of past experience in relationship to recreation place bonding has been investigated by a few researchers (Bricker & Kerstetter, 2000; Moore & Graefe, 1994; Williams, Patterson, Roggenbuck, & Watson, 1992). In a study of trail users, Moore and Graefe found the best predictor of place attachment (in terms of place identity) was years of use, and though less important, frequency of trail use was a significant predictor of place dependency. Williams and colleagues have also found that the amount of past experience was highly correlated with the place attachment dimensions of identity and dependence.

Place Bonding

Resource place bonding suggests that over repeated exposures with a place and through transactional processes of place-people interactions that places take on an identity of their own (Fishwick & Vining, 1992). Recreation resource researchers have conceptualized resource place attachment and bonding as consisting of the two dimensions of place identity and place dependence (Williams et al., 1992; Moore & Graefe, 1994; Williams & Vaske, in press). Place identity has been defined as a “sub-structure of the self-identity of the person consisting of broadly conceived cognitions about the physical world in which the individual lives (Proshansky, Fabian, & Kaminoff, 1983, p.59). Place dependence is based on an individual’s or group’s assessment of the quality of a place and the relative quality of alternative places (i.e., substitutes). An individual’s awareness and familiarity with alternative places, travel, mobility, and the specificity of the resource place they require affects the place dependence assessment (Stokols & Schumaker, 1981).

Other researchers have proposed additional dimensions to the resource bonding concept (Hammit & Stewart, 1996; Jorgensen & Stedman, 2001). This current paper reports analysis of a five dimensional model of place bonding, consisting of place familiarity, belongingness, identity, dependence, and rootedness. Place familiarity refers to the initial stages of the bonding process, which involves a

sense of place knowing and cognition that results from acquaintances and remembrances associated with a recreation place. Place belongingness involves a more social level of bonding with a place in that one feels affiliated with the place, as though they hold “membership” and are a part of a resource place (Milligan, 1998). Place identity and dependence were both conceptualized as by previous researchers. The place rootedness dimension refers to the bonding situation where the recreationist is so emotionally bonded to a specific place that they long for no other place to recreate (Tuan 1980).

Methods

Study Area

Trout anglers were surveyed in 2001 for EUH and place bonding in reference to the Chattooga National Wild and Scenic River (CBWSR) in northwestern South Carolina. The Chattooga is located on the state border between South Carolina and Georgia in the Sumter and Chattahoochee National Forests, respectively.

Research Participants

Members of the Chattooga River (S.C.) and Rabun (GA.) Chapters of Trout Unlimited were targeted for study. These Chapters are the two that most use and are most involved with management of the River. The two Chapters have a combined membership of approximately 300 members. Two hundred and ninety-two active members were mailed questionnaires using a Dillman (2000) modified procedure (initial questionnaire mailing, post card reminder, second questionnaire mailing, final postcard reminder). Seventy-one percent returned usable questionnaires. Respondents were predominantly male (97.5%), college educated (88.6%), and averaged 54 years of age.

Data Collection and Reduction Analysis

Experience use history. EUH was measured using six questions, assessing years and frequency per year of using both the Chattooga River and other similar streams. Specific questions asked trout anglers how many total times, years and average annual frequency of fishing the study site, as well as the number of total times, years and annual frequency of fishing other streams. For the purposes of this paper, four variables were used to form EUH for the study river and other rivers. In order to account for various levels and combina-

tions of EUH on the study river and on other rivers, a ratio of EUH was computed and further divided into high and low experience use groups of trout anglers.

Computing EUH Ratio. The ratio for EUH was computed for each angler of the study river by summing the years of fishing the CNWSR with the frequency per year fishing the CNWSR and dividing by the maximum reported sum of the two variables. The resulting frequency of ratios was then divided into LOW and HIGH groups, based on the median value of the ratios. The same procedure was done for the years and annual frequency of fishing on other rivers. Thus, LOW and HIGH levels of EUH resulted for both the study river and other rivers. Four combinations of LOW and HIGH levels of EUH were possible for anglers. Based on the four combinations of LOW and HIGH levels of EUH, four classifications of anglers were identified, similar to those used by Schreyer et al. (1984):

- Beginners - Anglers with low EUH on both the study river and other rivers.
- Visitors - Anglers with low EUH on the study river but high EUH on other rivers.
- Locals - Anglers with high EUH on the study river but low EUH on other rivers.
- Veterans - Anglers with high EUH on both the study river and other rivers.

Resource place bonding. Two measures of place bonding were collected. Overall place bonding was measured with a single item, asking anglers “Overall, how would you characterize your feelings of attachment to the Chattooga River.” A seven point rating scale (1=weak to 7=strong) was used to record angler overall bonding with the River. Secondly, a 26-item multi-dimensional scale was developed to measure the five conceptualized dimensions of place bonding (i.e., familiarity, belongingness, identity, dependence, rootedness). Items were rated on a five point agreement basis, where 1=strongly disagree to 5=strongly agree. The 26-items were then factor analyzed, using confirmatory factor analysis (Ullman, 2001), to reduce the items to the five dimensions of place bonding. The structure of the hypothesized recreation place bonding model was examined using the five dimensions as latent variables with corresponding scale items as indicators. Maximum

likelihood estimation was employed to estimate the model. The model when first tested yielded weak support: Chi-square/Degrees of Freedom Ratio ($\chi^2/d.f. = 2.20$), Comparative Fit Index (CFI = 0.91) and Standardized Root-Mean Squared-Residual (SRMR = 0.058). Post hoc modifications were performed in an attempt to develop a better fitting and more parsimonious model. On the basis of a LaGrange multiplier, two items were dropped from the scale, decreasing the $\chi^2/d.f. = 1.91$, increasing the CFI to 0.93 and maintaining a similar SRMR (0.06). All three values are in the acceptable range, indicating that the data fits the conceptualized five dimension bonding model.

Results

Experience Use History

The Trout Unlimited respondents were experienced anglers, both at the study site and at similar streams (Table 1). The mean number of total years trout fishing (anywhere) was 32. On average, the anglers had fished the CNWSR for 15 years, however, some had never fished the CNWSR while the longest anyone had fished it was 53 years. Respondents made an average of 10 fishing trips to the CNWSR in the last 12 months. In terms of trout fishing other streams, anglers averaged 18 years of participation, with a frequency of 21 trips in the last 12 months. The anglers trout fished an average of eight streams last year, in addition to the study area.

Place Bonding

Overall place bonding for the study site was fairly strong ($M = 4.95$, $SD = 1.47$) among trout anglers. This might be expected, since the two Trout Unlimited Chapters sampled were affiliated with the Chattooga River, members had fished the River for an average of 15 years, and nearly 25% felt the Chattooga was the best place for trout fishing.

Table 1. — Experience Use History for Trout Fishing the Chattooga National Wild and Scenic River (CNWSR) and Other Rivers

Experience Variable	Median	Mean
Total years trout fishing anywhere	31.50	31.53
Years trout fishing the CNWSR	11	14.70
Times trout fishing the CNWSR last year	4	9.84
Years trout fishing other local streams	15	17.54
Times trout fishing other local streams last year	8	20.81
Number of other local streams trout fished last year	5	7.71

The confirmatory factor analysis supported the five dimensional model of place bonding (Table 2). Only two items from the scale had to be dropped to achieve an acceptable model and all five bonding dimensions had acceptable reliability alphas (.79 to .91). Place Familiarity was the most reliable measure, followed closely by Identity and Dependence. The factor having the least internal consistency was Rootedness. Trout anglers agreed that they felt a sense of Belongingness and Identity to the Chattooga River, but not a bonding in terms of Dependence (factor $M = 2.55$) and Rootedness (factor $M = 1.83$). Four of the five dimensions differ significantly ($p < 0.05$) in terms of place bonding. Content interpretation of items within each dimension indicated that trout anglers had a fairly strong sense of fondness ($M = 4.21$) and connectivity ($M = 3.69$) to the study site (i.e., Belongingness), and that the Chattooga was a special place ($M = 3.95$) that meant a great deal ($M = 3.91$) to them (i.e., Identity). However, the trout anglers did not consider the Chattooga the only place to trout fish ($M = 2.34$). Thus, the anglers who are familiar with the study site have developed a fair degree of identity and sense of belongingness toward it, but are not dependent on nor feel a degree of rootedness with the place.

This latter finding might be explained by the fact that the participants were quite experienced anglers, and had knowledge and experience of other streams that can substitute for the study site. Use history data in Table 1 indicated that the anglers had fished eight local streams last year in addition to the Chattooga, at an average of 18 fishing trips.

Relationship Between Experience Use History and Place Bonding

Hypothesized Relationships. The following relationships were hypothesized for the four EUH classifications of anglers and place bond variables. Locals, because they have high experience with the CNWSR but lack much experience with other rivers, would have the highest level of bonding. Visitors, having the opposite EUH relationship, would have the lowest level of bonding. Veterans and Beginners would be in the middle, but Veterans would have a higher level of place bonding with the CNWSR because of their greater experience with it. Veterans, because of their high level of experience on all rivers, would have many

place bonding choices (as compared to Locals), and a somewhat lower bonding level than Locals.

Testing Hypothesized Relationships. Analysis of variance (ANOVA) was used to test for mean differences and patterns of mean values among the four EUH classifications for the dimensions of place bonding (Table 3). Six measures of place bonding were tested and all found highly significant among the four EUH classes of anglers. The pattern of means (i.e., order of levels) hypothesized was a perfect match (i.e., Visitors low, Locals high, Veterans high medium, Beginners low medium) for the variables of overall bonding and the bonding dimensions of belongingness, identity, and dependence. Familiarity was partially supported in that Locals ($M = 3.77$) and Veterans ($M = 4.01$) had the highest levels of place bonding and Beginners ($M = 2.73$) and Visitors ($M = 2.96$) the lowest levels, but the exact order predicted was not supported. Familiarity is the most cognitive/site knowledge based of the five bonding dimensions and this may explain why Veterans (i.e., high experience) scored highest on familiarity bonding. Rootedness was scored lowest by Visitors ($M = 1.66$) and highest by Locals ($M = 2.26$) as predicted. However, the predicted order did not hold up for Veterans and Beginners. Although the average degree of rootedness for the study areas was quite low for all classes of anglers, the finding that Locals were most rooted to the area was logical.

A cautionary note is in order concerning the relationship between EUH and place bonding. Even though all the bonding relationships tested were significant, and the hypothesized EUH relationships fairly strongly supported, many of the mean differences among the EUH classes were not significant (Tukey HSD test, $p < 0.05$). However, it was encouraging that the Locals and Veterans were significantly different from the Beginners and Visitors on most of the bonding variables (see Tukey results).

Discussion And Conclusions

Schreyer et al. (1984) postulated that EUH represents the amount, type, and diversity of information available to an individual through previous experience, and it represents the frame of reference through which people evaluate recreation places. Other authors have stated that the information gained and frame of reference

Table 2. — Factors, Items, Means, and Factor Loadings Resulting from Confirmatory Factor Analysis of a Five Dimensional Model of Place Bonding

Factored Dimension Item	Item Mean ¹	Factor Loading	Factor Mean	Factor Alpha
Familiarity			3.34	.91
I could draw a rough map of the Chattooga.	3.43	.86		
I have trout fished the Chattooga many times and I am quite familiar with it.	3.64	.87		
I know the Chattooga like the back of my hand.	2.96	.90		
Place Belongingness			3.52	.86
I feel connected to the Chattooga.	3.69	.84		
I am fond of the Chattooga.	4.21	.70		
The Chattooga makes me feel like no other place can.	3.09	.70		
When I am at the Chattooga, I feel part of it.	3.69	.71		
I feel like I belong at the Chattooga.	2.96	.82		
Place Identity			3.51	.90
The Chattooga is very special to me.	3.95	.77		
I am very attached to the Chattooga.	3.61	.90		
The Chattooga means a great deal to me.	3.91	.90		
I identify strongly with the Chattooga.	3.58	.88		
Visiting the Chattooga says a great deal about who I am.	3.03	.64		
I feel like the Chattooga is part of me.	3.00	.85		
Place Dependence			2.55	.89
The Chattooga is the best place for trout fishing.	2.81	.69		
Trout fishing on the Chattooga is more important to me than trout fishing any other river.	2.68	.78		
No other place can compare to the Chattooga for trout fishing.	2.34	.73		
I wouldn't substitute any other area for the trout fishing I do at the Chattooga.	2.37	.82		
I get more satisfaction out of trout fishing the Chattooga than from trout fishing any other river.	2.42	.90		
The trout fishing I do at the Chattooga I would enjoy just as much at a similar river or stream ² .	3.29	.48		
Rootedness			1.83	.79
The Chattooga is the only place I desire to trout fish.	1.96	.78		
I rarely if ever trout fish any place other than the Chattooga.	2.03	.76		
If I could not fish the Chattooga I would stop trout fishing.	2.98	.52		
I consider only the Chattooga when I go trout fishing.	1.45	.73		

¹Means based on 5-point agreement rating scale, where 1 = strongly disagree, 5 = strongly agree.

²Item reverse coded for analysis.

Model: χ^2 /d.f. = 1.91; CFI = .93; SRMR = .06.

formed through repeated past experiences can lead to an emotional bond with places (Low & Altman, 1992; Moore & Graefe, 1994; Williams et al., 1992). The purpose of this paper was to report the amount, type, and diversity of EUH, and resource place bonding among avid trout anglers, and the linkage among these variables.

This study expanded the operational definition of recreation place bonding beyond the dimensions of identity and dependence. Other authors have suggested additional dimensions to these two, and our results offer initial support for the additional bonding dimensions of place familiarity, belongingness, and rootedness. The confirmatory factor analysis of the bonding scale resulted in three or more items per factor and acceptable

reliability alphas for each factor (Cronbach's alphas = .79 to .91). Perhaps more importantly was the finding that each of the place bonding dimensions varied significantly when compared with level of angler EUH classifications. It should be noted that this study was designed to investigate the expanded place bonding dimensions with a very experienced group of recreationists (i.e., Trout Unlimited members) at a rather specific resource place (i.e., National Wild and Scenic River). This was done so that the more experience based dimensions like dependence and rootedness, in particular, might be examined. Still, rootedness with the study area was the weakest emotional bond, even for Local anglers ($M = 2.26$). This finding may exist because outdoor recreation places are areas people visit, not a home or community where one lives or spends

Table 3. — Mean Differences Between Experience Use History Classes of Trout Anglers and Place Bonding Behavior

Place Bonding Variables	Experience Use History				F	P
	BEGINNERS	VISITORS	LOCALS	VETERANS		
	Mean Scores ³					
Place Bonding						
Overall Bonding ¹	4.44 ^a	4.32 ^a	5.86 ^b	5.54 ^b	13.04	.000
Familiarity ²	2.73 ^a	2.96 ^a	3.77 ^b	4.01 ^b	26.09	.000
Belongingness	3.32 ^{ab}	3.26 ^a	4.00 ^c	3.74 ^{ba}	8.31	.000
Identity	3.22 ^a	3.18 ^a	4.04 ^b	3.83 ^b	12.38	.000
Dependence	2.47 ^{ab}	2.33 ^a	2.92 ^b	2.67 ^{ab}	3.09	.029
Rootedness	1.86 ^a	1.66 ^a	2.26 ^b	1.77 ^a	4.79	.003

¹ Means based on 7-point scale; 1 = weak, 7 = strong.

² Means for Familiarity to Rootedness based on 5-point scale; 1 = strongly disagree, 5 = strongly agree.

³ Means with different superscripts are significantly different; Tukey HSD, $p < 0.05$.

extended periods of time. Also, the anglers of this study had alternative places (substitute streams) to fish, rather than limiting use (rooted) to only one place. Thus, while aspects of rootedness may be associated with home and community attachment (Mesch & Manor, 1998; Tuan, 1980), it is less likely to be a strong emotional bond with recreation place, except perhaps for long term and inherited vacation homes (Kaltenborn, 1998). Also, the five dimensional bonding scale may not work as well with participants of less EUH and generalize activities that can occur in a generic outdoor environment (i.e., day hiking).

Based on the analysis of the EUH classifications and type and degree of place bonding, it is concluded that level of EUH is a good indicator of the emotional bond that can develop for recreation places over time. While it is extremely difficult to measure the developmental processes by which internal states of place bonding occur, EUH has the potential to serve as an indicator of the dimensions and degree of bonding (Schreyer et al., 1984). A logical next step in researching the linkage between EUH and place bonding from a developmental perspective would be to study place bonding over a continuum of EUH experiences (i.e., experiential and longitudinal sampling).

Notes. Paper based on MS Thesis data of Erik A. Backlund, while a graduate student at Clemson University. This specific paper is a condensed and adapted version of a manuscript submitted for journal publication. Research was partially funded

by the Rocky Mountain Research Station, U.S. Forest Service, and the Sumter National Forest, South Carolina, U.S. Forest Service.

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Pages 306-312 in:

Murdy, James, comp., ed. 2004. **Proceedings of the 2003 Northeastern Recreation Research Symposium**. Gen. Tech. Rep. NE-317. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 459 p.

Contains articles presented at the 2003 Northeastern Recreation Research Symposium. Contents cover planning issues, communications and information, management presentations, service quality and outdoor recreation, recreation behavior, founders' forum, featured posters, tourism and the community, specialized recreation, recreation and the community, management issues in outdoor recreation, meanings and places, constraints, modeling, recreation users, water-based recreation, and recreation marketing.

Published by:
USDA FOREST SERVICE
11 CAMPUS BLVD SUITE 200
NEWTOWN SQUARE PA 19073-3294

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July 2004

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